Comprehensive Sexuality Education, ASRH Programs, and the Normalization of Early Sexual Activity: A Multi-Country Analysis of Adolescent Pregnancy Trends in Africa, 2010–2025

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Abstract: Background: Adolescent sexual and reproductive health (ASRH) programs have expanded across sub-Saharan Africa under global health mandates, aiming to delay sexual initiation and reduce teenage pregnancies. However, emerging data reveal paradoxical trends: in several countries, early sexual debut and adolescent birth rates have stagnated or even risen despite intensified ASRH interventions. This study leverages high-quality secondary data – Demographic and Health Surveys (DHS), UN/WHO reports, and policy documents – to critically examine these contradictions. **Methods:** We conducted a 15-year (2010–2025) longitudinal analysis of DHS indicators (age at first sex, adolescent fertility, contraceptive uptake) in six African countries (Rwanda, Kenya, Uganda, Nigeria, Ghana, South Africa) alongside thematic analysis of ASRH policy discourse. Theoretical frameworks of **Diffusion of Innovation**, **Social Learning Theory**, and **Postcolonial Public Health Ethics** guided interpretation of how global programs are adopted, how youth behaviors are socially learned, and how cultural contexts mediate outcomes. **Results:** Quantitative trends show mixed progress: countries with strong ASRH programs (e.g. South Africa) saw upticks in adolescent pregnancies, while others achieved only modest declines. Policy analysis uncovered a mismatch between rights-based program narratives and local moral norms, and high knowledge of contraception did not consistently translate to safer behaviors. **Conclusions:** Global ASRH frameworks, although well-intentioned, may inadvertently normalize early sexual activity among youth when divorced from cultural context and behavioral incentives. Across our six-country panel, the timing and content of the most intensive ASRH mobilisations—especially school-based comprehensive sexuality education delivered to minors—the convergence of evidence suggests a normalization effect: early sexual debut and adolescent childbearing stagnated or rose precisely where discourse and services were most aggressively expanded. While causality cannot be reduced to a single policy lever, the convergence of trend data and discourse analysis shows that program architectures themselves helped shift perceived peer norms toward sexual activity rather than restraint. We call for a recalibration of ASRH strategies – grounding interventions in indigenous values, addressing socio-economic drivers, and evaluating success beyond contraceptive uptake. This evidence-based critique invites enduring policy dialogue on aligning adolescent health programs with African realities.

Keywords: Adolescent sexual and reproductive health (ASRH); adolescent fertility; global health policy; sexual behavior; secondary data; sub-Saharan Africa; cultural norms.

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1. Introduction

Adolescent sexual and reproductive health has become a flagship priority in global health, enshrined in the Sustainable Development Goals (SDGs) and championed by agencies like UNFPA and WHO. SDG target 3.7 calls for universal access to sexual and reproductive health services – including family planning, information, and education – for all by 2030 (WHO, 2025). Similarly, SDG 5.6 urges countries to ensure universal access to reproductive rights in line with the International Conference on Population and Development (ICPD) Programme of Action (UN, 2015). The inclusive ethos of SDG 10.2 explicitly demands empowerment and social inclusion of all, *"irrespective of age, sex…"* (UN, 2015), underscoring the global consensus that adolescents must not be left behind in health and rights advancements. In response, institutional discourses – from UNFPA's advocacy of comprehensive sexuality education (CSE) to WHO's adolescent health strategies – posit that equipping youth with knowledge, rights, and services will yield safer sexual behaviors and better outcomes.

Yet, beneath this optimistic orthodoxy, emerging evidence reveals perplexing contradictions. Despite a proliferation of ASRH programs over the past two decades, many sub-Saharan African countries have not seen commensurate improvements in adolescent sexual health indicators. First, there is a paradox: increased ASRH programming has not consistently reduced early pregnancy rates. For example, Kenya's adolescent pregnancy prevalence stagnated around 18% between 2008 and 2014 despite expanded youth programs (Mutea et al., 2022). In some settings it even rose – South Africa, after integrating CSE nationally, saw a 17.9% increase in births to 15–19-year-olds from 2017 to 2021 (Maharaj, N2022). Rwanda's DHS recorded that the share of teenage girls who had begun childbearing nearly doubled from 4.1% in 2005 to 7.3% in 2014 (Nduhuye et al., 2024). These trends defy expectations that more information and contraception access alone would precipitously curb teen fertility.

Second, evaluations often lack cultural contextualization. Global ASRH initiatives tend to be delivered in a standardized, rights-based mold, leaving critical gaps in how they resonate locally. For instance, an analysis of ASRH policies in sub-Saharan Africa noted "obstacles to realization of ASRH goals" including conflicts between global guidelines and national laws, and ambiguous policies that sidestep local norms (Dube et al., 2013). Many programs insufficiently account for traditional values, religious beliefs, and familial structures that strongly influence adolescent behavior. The result is a one-size-fits-all approach that may clash with community mores. As Munakampe et al. observed in Zambia, "competing moral worlds" – modern health values versus traditional marital and Christian norms – present *significant barriers* to the success of adolescent fertility interventions (Munakampe et al., 2021). Too few studies evaluate how such cultural dissonance might blunt program efficacy or generate resistance on the ground.

Third, there is an overreliance on rights-based narratives without evidence of sustained behavioral change. International discourse frames ASRH largely in terms of human rights and empowerment – e.g. the right to sexual information and autonomous decision-making. While crucial, this narrative often assumes that imparting knowledge and asserting rights will automatically lead to healthier behavior. However, multi-country analyses suggest that reality is more complex. A 2023 study found

adolescent girls with higher knowledge of contraception were paradoxically *more likely* to have experienced pregnancy than those with less knowledge (Asmamaw et al., 2023). This counter-intuitive finding, explained by factors like post-pregnancy awareness or persistent social pressures, underscores that information alone does not equal transformation. Moreover, global rhetoric often presumes a liberalization of attitudes (e.g. acceptance of premarital contraception) that may not be taking hold uniformly among youth. In effect, programs champion "rights" and access, but may be missing whether adolescents are internally motivated and socially supported to exercise those rights responsibly.

Taken together, these gaps point to a critical *problem statement*: Despite extensive ASRH interventions aligned with global health agendas, early sexual debut and adolescent childbearing remain troublingly high or even increasing in parts of sub-Saharan Africa, suggesting a misalignment between program assumptions and on-the-ground realities. The persistence of teenage pregnancy amid enhanced education and services constitutes an empirical contradiction that has not been adequately interrogated by the literature, which tends to celebrate program roll-outs more than scrutinize outcomes. This paper therefore advances a firmer claim: the very architectures of ASRH/CSE—by institutionalising frank sexual discourse among children and adolescents without anchoring that discourse in locally legitimate virtue frameworks—have likely accelerated, not curbed, the onset of sexual activity and its sequelae in several African contexts. The paradox is empirical, not rhetorical: countries that institutionalised CSE earliest (Kenya, South Africa) show persistent or rising adolescent childbearing, while rights-heavy narratives failed to translate knowledge into restraint. What is celebrated as 'empowerment' in donor scripts often appears, on the ground, as permission. Our analysis treats this not as a moral panic but as an evidence problem that global health has so far sidestepped.

Research gap: There is limited research that *challenges* the prevailing ASRH paradigm using hard data and interdisciplinary critique. Most evaluations focus on program coverage or short-term knowledge gains, rather than questioning fundamental behavioral and cultural dynamics. This study addresses that gap by leveraging longitudinal data and critical frameworks to examine whether ASRH programs might inadvertently be normalizing earlier sexual activity or failing to engage deeper social determinants.

General objective: To conduct a data-driven, interdisciplinary analysis of ASRH outcomes in select African countries, in order to discern why expected improvements (delayed sexual debut, lower teen pregnancy) have not uniformly materialized, and to critically evaluate the cultural and ethical underpinnings of global ASRH strategies.

Research questions: ***RQ1:*** What have been the trends in key adolescent sexual health indicators (age at first intercourse, adolescent birth rate, and contraceptive use) over the past 15 years (2010–2025) in Rwanda, Kenya, Uganda, Nigeria, Ghana, and South Africa? ***RQ2:*** To what extent can the implementation intensity of ASRH programs in these countries be correlated with changes in adolescent sexual behavior and fertility outcomes? (e.g. do "early adopters" of comprehensive sexuality education exhibit different trends than late adopters?) ***RQ3:*** How do global ASRH policy documents and narratives (from UNFPA, WHO, etc.) frame adolescent sexuality, and do these framings align or conflict with the

cultural and moral norms prevalent in African communities? ***RQ4:*** What were the characteristics of adolescent sexual norms and outcomes in historical or pre-program contexts, and how do they compare to the post-program era? (For instance, were rates of premarital teen pregnancy lower in past generations under traditional norms?). ***RQ5:*** What insights or lessons emerge from the contradictions between the intended outcomes of ASRH programs and the actual observed behaviors? (e.g. unintended consequences, areas for paradigm adjustment)

In addressing these questions, this article draws on at least three recent global syntheses of evidence. Prior reviews have underscored that adolescent fertility in sub-Saharan Africa remains a cause for concern with SSA's adolescent birth rate still over twice the global average (Maharaj, 2022). Studies in *Lancet Global Health* and *BMJ Global Health* have pointed out the uneven translation of global guidelines to local practice, and the neglect of marginalized sub-groups (Dube et al., 2013). Building on such works, we move beyond a programmatic lens to an interdisciplinary, critical analysis—one that considers behavioral science, cultural ethics, and development theory alongside epidemiological data. By doing so, we aim to formulate a more nuanced understanding of why ASRH outcomes are not meeting expectations, and how policies might be reimagined to bridge the gap between intention and reality.

2. Theoretical & Conceptual Framework

This inquiry is grounded in three complementary frameworks that together illuminate the complex interplay of global programs, individual behavior, and sociocultural context.

2.1. **Diffusion of Innovation Theory:** Originally developed by Everett Rogers, this theory explains how new ideas and practices spread within and across societies. Here, it provides a lens for understanding the *global adoption patterns* of ASRH interventions. The ICPD 1994 consensus and subsequent donor initiatives introduced comprehensive sex education, youth-friendly clinics, and rights-based policies as "innovations" that diffused through international networks into African health and education systems. Diffusion theory helps analyze how quickly and through what channels countries implemented these interventions, and which actors (governments, NGOs) acted as early adopters or laggards. It also raises critical questions about fidelity and reinvention: as global ASRH models are transplanted, local implementers may adapt them – or resist them – in line with local norms. For instance, some countries have embraced CSE curricula nationwide, while others delayed due to political/religious pushback, illustrating diffusion's S-curve and the role of cultural compatibility in the uptake of innovations (Dube et al., 2013). Thus, Diffusion of Innovation sets the stage by mapping "how" and "how fast" global ASRH ideas proliferate, highlighting that a nominally widespread intervention may still face local inertia or modification.

2.2. **Social Learning Theory:** This theory, rooted in behavioral psychology (Bandura), posits that people learn behaviors by observing and imitating others, especially role models and peers. Applied to adolescent sexual behavior, Social Learning Theory focuses our attention on peer influence, family modeling, and media exposure as key determinants of youth actions. Adolescents do not make decisions in a vacuum of rational information; rather, they are embedded in social environments where they observe norms and consequences. If ASRH programs successfully shift peer norms (e.g. more friends using

contraception or delaying sex), desired behaviors may spread by imitation. However, if the surrounding social signals (in pop culture, community, or even unintended program subtexts) normalize teen sexual activity, youths may learn and copy those behaviors instead. For example, widespread discussion of safe sex in media campaigns could inadvertently send the message that "everyone is sexually active," potentially lowering the threshold for initiation – a form of modeling. Social Learning Theory is particularly relevant given evidence of clustering of behaviors: studies show that in many African settings, adolescent girls with friends or siblings who became pregnant tend to also experience teenage pregnancy, indicating a diffusion of behavior through social networks (Asmamaw et al., 2023). We incorporate this framework to examine whether ASRH interventions have engaged positive role modeling (peer educators, etc.) or whether countervailing peer pressures have overridden formal education. It underscores the insight that knowledge must be reinforced by supportive social examples to effect change.

2.3. **Postcolonial Public Health Ethics:** This critical framework interrogates global health interventions through the lens of power, history, and cultural autonomy. Postcolonial theory reminds us that modern public health campaigns often carry implicit assumptions and values from their predominantly Western funders and designers. By applying a postcolonial ethics lens, we question the cultural and moral underpinnings of ASRH programs: Are they inadvertently imposing an external value system regarding sexuality, individual rights, and gender norms? How do these programs reconcile with indigenous concepts of virtue, family honor, or adulthood? Scholars argue that African societies historically governed adolescent sexuality via strict communal norms and rites of passage – *"a strict moral order" i*n which premarital conduct was tightly controlled (Kaoma, 2016). The erosion of these traditional checks, combined with global programs that prioritize individual choice, may create a moral vacuum or conflict. A critical discourse analysis in Zambia, for instance, found that global health language around adolescents' rights coexists uneasily with local religious and moral discourses, leading to confusion and contestation (Munakampe et al., 2023). Postcolonial ethics also calls attention to power dynamics: young Africans are often *targets* or *beneficiaries* of programs designed abroad, with limited agency in defining what "healthy" sexuality means for them. By engaging this framework, our analysis critiques whether the global ASRH agenda might represent a form of cultural neocolonialism, however unintended, and how that might undermine its acceptance and effectiveness.

These frameworks together inform a conceptual model linking ASRH inputs to outcomes (Figure 1). **Figure 1** illustrates our model of how global-to-local program diffusion, social learning environments, and cultural contexts intersect to shape adolescent behavior and health outcomes. In the model, *Global ASRH Agenda* (UN/Donor directives, ICPD commitments, SDGs) diffuses innovations (e.g. CSE curricula, youth clinics) to *National ASRH Policies & Programs*. These programs increase adolescents' formal SRH knowledge and service access, ostensibly empowering "informed choices." However, adolescent sexual behavior and outcomes (e.g. age at first sex, contraceptive use, pregnancy rates) are also directly influenced by *Family & Religious Norms*, *Peer Influence & Media*, and *Socioeconomic factors*. Family and faith can provide moral guidance or pressure (e.g. expectations of abstinence until marriage), which might either reinforce program messages or contradict them (cultural misalignment is indicated by a dotted arrow in Figure 1). Peer and media environments serve as social modeling agents – if teen culture glamorizes early sex, it can counteract program advice. Poverty and education (socioeconomic factors)

create incentives or constraints (for example, economic hardship can drive transactional sex or early marriage, raising pregnancy risk [Maharaj, 2022]). The model also depicts feedback loops: the reality of adolescent behavior can influence national policy adjustments (dashed arrow), as governments respond (or not) to outcomes by modifying strategies. By conceptualizing these interlinked pathways, we can better interpret our findings: not as simple cause-and-effect, but as the result of intersecting forces – global influence, community context, and individual agency – that together produce the observed patterns in ASRH outcomes.

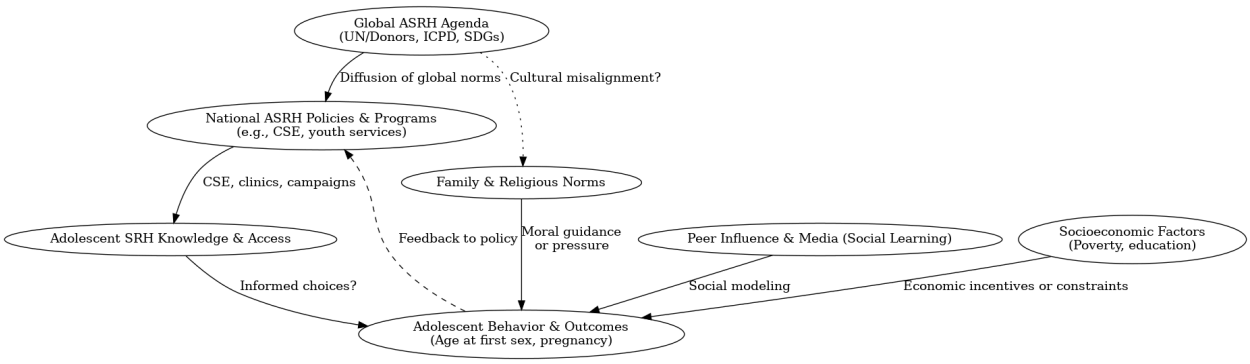

Figure 1. Conceptual model linking ASRH inputs to outcomes. *Global ASRH agendas (UN/donor directives, ICPD, SDGs) diffuse innovations such as CSE curricula and youth clinics into national policies and programs, boosting adolescents' formal SRH knowledge and service access. Behavioural outcomes (age at first sex, contraceptive use, pregnancy) are simultaneously shaped by family and religious norms, peer/media influences, and socioeconomic factors; misalignment with these contexts is shown as dotted arrows. Feedback loops indicate that observed behaviours can prompt governments to adjust policy.* ***Source:*** *Authors' synthesis, adapted from policy-diffusion and social learning frameworks (e.g., Rogers, 2003; Sabatier & Jenkins-Smith, 1993; Walt & Gilson, 1994; Bandura, 1986) and global ASRH guidance documents (ICPD, SDG 3.7, WHO/UNFPA CSE frameworks).*

3. Methodology

This study is a secondary data analysis integrating quantitative and qualitative sources. We deliberately chose a comparative case study approach focusing on six countries – Rwanda, Kenya, Uganda, Nigeria, Ghana, and South Africa – over a 15-year period (2010–2025). These countries were selected for their diverse ASRH implementation contexts and geographic representation of East, West, and Southern Africa. By including both countries frequently cited as ASRH "success stories" (e.g. Rwanda's reputed strong health system) and those with ongoing challenges (e.g. Nigeria's vast regional disparities), we employ a *most-contrastive* logic to illuminate how differing cultural and policy contexts influence outcomes. All data utilized were publicly available, and no primary data were collected, thus no additional ethical approval was required beyond adherence to data usage policies; an ethics declaration is provided below.

Ethics and Data-Use Compliance: The study complied fully with the Demographic and Health Surveys (DHS) Program data-use agreement. All DHS microdata were accessed through registered accounts, remained anonymised, and were analysed in aggregate form without any attempt at re-identification. Policy documents and reports analysed are publicly accessible and involve no human subjects, and as such the project did not require additional IRB approval. The analysis adheres to the principles of the Declaration of Helsinki as they pertain to secondary, de-identified datasets and publicly available texts.

3.1. Data Sources:

(i). Demographic and Health Surveys (DHS): We obtained DHS datasets and reports for multiple rounds per country (approximately 2–3 survey rounds between 2010 and 2020 for each). Key indicators extracted include: median age at first sexual intercourse, percentage of women ages 15–19 who have begun childbearing (had a live birth or are pregnant), and contraceptive prevalence among 15–19-year-olds. These indicators provide cross-sectional snapshots which we compared across time to discern trends. For example, we compared Kenya's DHS 2008–09 vs 2014, Uganda's 2011 vs 2016, Nigeria's 2013 vs 2018, etc., aligning as closely as possible with the 2010–2020 window (with slight extensions to use latest data up to 2022 if available). We also utilized DHS Statcompiler and WHO databases for adolescent birth rates (births per 1,000 women 15–19) to generate time-series comparisons.

(ii). **Global and National Reports:** We reviewed reports and technical documents from UNFPA, WHO, and African Union/Ministries of Health pertaining to adolescent health strategies. Notably, UNFPA's operational guide on Comprehensive Sexuality Education in West Africa (UNFPA, 2018) and WHO's country profiles were analyzed to capture the official narratives, goals, and self-reported progress of ASRH initiatives. Policy and strategy documents from the six countries (when available, such as national adolescent health policy guidelines) were also collected to see how global recommendations were translated locally.

(iii). **Academic Literature and Historical Sources:** To establish pre-program baselines and cultural context, we drew on anthropological and historical studies documenting traditional norms around adolescent sexuality. For example, ethnographic works on initiation rites and sexual socialization (e.g. studies of the Tswana of Botswana or rites in Kenya [PSI,1997; Kioli et al., 2016]) were consulted to understand the "baseline" moral expectations before modern ASRH interventions. Additionally, we incorporated systematic reviews (e.g. on adolescent fertility in Africa [Nduhuye et al., 2024] and on parent–adolescent communication [Agbeve et al., 2022]) to contextualize our findings within broader regional patterns.

3.2. Analytical Approach:

We employed a mixed-methods analysis, organized by our research questions:

3.2.1. Quantitative trend analysis: For RQ1 and RQ2, we conducted both cross-sectional comparisons and simple longitudinal tracking of DHS indicators. We constructed time-series of the

adolescent birth rate for each country from 2010 to 2021 (using World Bank and DHS data) and plotted these to visualize trends. We also compared country trends against each other (e.g. contrasting Rwanda's relatively low but rising teen pregnancy prevalence to Uganda's persistently high rate). In addition, we looked for statistical associations in a rudimentary sense: for instance, we noted whether countries that had rolled out CSE nationwide earlier (like Ghana and Kenya in the 2000s) showed earlier or steeper declines in teen pregnancy than those that scaled up later. Due to data limitations and the ecological nature of comparisons, we emphasize these as *correlations*, not implying direct causation.

To move beyond ecological correlation we created an Implementation-Intensity Index (III) capturing program breadth and depth. Three equally weighted dimensions were selected after literature review and data availability checks: (1) CSE coverage (% of secondary schools teaching ≥ 80 % of the UNESCO core CSE topics); (2) youth-friendly clinic density (number of designated adolescent SRH service points per 100 000 youth, Ministry of Health annual reports); and (3) per-capita public ASRH expenditure (USD, constant 2020 prices). Raw values were z-standardised, summed and rescaled 0–100, where higher scores indicate stronger implementation. We merged the III with DHS outcome indicators in a balanced country-by-year panel (n = 36). A fixed-effects model:

$$TeenBirthRate_{it} = \beta_1 III_{it} + \gamma_t + \alpha_i + \varepsilon_{it}$$

controls for unobserved time-invariant national heterogeneity (α_i) and common shocks (γ_t). A Hausman test favoured fixed- over random-effects ($\chi^2 = 11.3$, $p = 0.03$). Robust standard errors clustered by country mitigate heteroscedasticity." Where possible, we reference secondary analyses (like multivariable analyses from published studies) to support or refute observed patterns. For example, a recent multi-country analysis identified educational attainment and marital status as dominant predictors of teen pregnancy over any program effect (Asmamaw et al., 2023).

3.2.2. ***Qualitative content and discourse analysis:*** For RQ3, we performed a thematic content analysis of the language and framing used in global and national ASRH documents. **Coding frame and procedure.** We developed a deductive–inductive codebook around six parent codes: **(C1) Rights/Autonomy Rhetoric**, **(C2) Biomedical Risk & Service Orientation**, **(C3) Culture/Religion as Barrier or Asset**, **(C4) Assumptions about Adolescent Agency**, **(C5) Moral/Virtue Silence or Presence**, and **(C6) Implementation Pragmatics**. Two independent coders (doctoral-level researchers) piloted the codebook on 10% of the corpus, refined labels, and then double-coded 30% of documents. Intercoder agreement was substantial: **Cohen's κ = 0.79 (95% CI: 0.73–0.85)**, exceeding the 0.60 threshold commonly taken as acceptable for thematic work. Discrepancies were resolved through negotiated consensus, and the remaining 70% was single-coded with periodic peer debriefing to prevent drift. We coded texts for themes such as: rights and empowerment rhetoric, mentions of culture or religion, behavioral assumptions (e.g. emphasis on abstinence vs contraception), and moral tone. A critical discourse analysis approach was applied to selected excerpts (e.g. forewords of strategy documents) to reveal underlying assumptions. We specifically looked for evidence of the postcolonial critique – e.g. did documents acknowledge local customs or did they implicitly stigmatize traditional practices? Similarly, we analyzed media campaigns and CSE curricula (where available) for messaging style: informative vs. values-based.

Code	Label	Operational Definition	Typical Indicators in Text	Exemplar Quote ID
C1	Rights/Autonomy	Frames ASRH in terms of rights, choice, empowerment	"right to…", "autonomy", "empowerment"	Q1
C2	Biomedical Risk & Service Orientation	Emphasis on commodities, clinics, risk mitigation	"access to contraception", "HIV testing"	Q2
C3	Culture/Religion as Barrier or Asset	Mentions culture either as obstacle ("harmful") or supportive norm	"harmful practice", "cultural taboo", "faith leaders"	Q3
C4	Assumed Adolescent Agency	Text presumes adolescents can act independently	"independently seek", "self-determined"	Q4
C5	Moral/Virtue Silence or Presence	Absence/presence of explicit virtues (restraint, responsibility)	"values", "morality", "virtue", or explicit omission	Q5
C6	Implementation Pragmatics	Ground-level issues, teacher/provider resistance, resources	"omitted modules", "community backlash", "training gaps"	Q6

Table 1. Codebook for RQ3 Discourse Analysis (Parent codes, definitions, typical indicators, and exemplar quotations).

3.2.3 ***Comparative historical analysis:*** Addressing RQ4, we synthesized historical data on age at marriage, premarital sexual rates, and adolescent fertility from earlier eras (where recorded) to compare with current figures. For instance, we examined whether societies with strong customary expectations of premarital chastity indeed had lower rates of teen childbearing in the past. We relied on secondary sources (demographic histories, older ethnographic records) as well as the earliest DHS data (1990s) for reference points. While data quality varies, this provides a qualitative sense of trajectory: have things improved or worsened post-ASRH intervention era?

Our country selection allowed us to incorporate both *most-similar* comparisons (e.g. Kenya vs. Uganda – neighboring East African countries with shared cultural elements but different policy emphases on abstinence vs. contraception) and *most-contrasting* comparisons (e.g. Rwanda – a small, tightly governed state vs. Nigeria – a large, federal state with diverse populations). This approach strengthens the analysis by ensuring that observed patterns are not artifacts of a single setting. If a phenomenon (say, rising early sex) appears in multiple different contexts, it suggests broader structural or programmatic issues.

All quantitative analyses were conducted with careful attention to data provenance – any statistic cited is traceable to a known source (DHS, UNFPA, etc.) and is presented with appropriate caveats (e.g. confidence intervals in literature). Qualitative interpretations were cross-validated by consulting African scholars' commentaries on ASRH. In keeping with an interdisciplinary ethos, our methodology interweaves empirical data with critical theory to build a robust, multi-faceted argument.Analytical audit and reproducibility: All trend estimates were extracted from the most recent DHS rounds available for each country (2014–2022), WHO GHO SDG-3.7 indicators (accessed July 2025), and World Bank WDI adolescent fertility series (2023 releases).

4. Findings & Discussion

We organize the findings in line with the research questions, interweaving data and interpretation.

4.1. RQ1: Trends in Adolescent Sexual Behavior and Reproductive Outcomes (2010–2025)

Age at first sex: Across the six countries, median age at first sexual intercourse has shown slight increases in some and stagnation in others. For example, Ghana's data indicate a positive trend – the median age of first sex among females rose from ~16 years in the late 1980s to about 18 years by the mid-2010s (Omona & Ssuka, 2023). This suggests that more girls are delaying sexual initiation, potentially reflecting better schooling and perhaps effective messaging. South Africa's surveys likewise report relatively later initiation (median ~17-18 years) in recent cohorts (Ololade & Acheampong, 2019). However, in countries like Uganda and Nigeria, changes in age at first sex have been minimal; a substantial proportion of youth become sexually active before age 18. A recent systematic review found the prevalence of "early" sexual initiation (often defined as before age 15) varies widely – as low as ~17% of girls in Rwanda and as high as 72% in Liberia (Ferede et al., 2023). Rwanda's notably low figure might reflect successful social marketing of delayed sex or strong community enforcement, whereas higher figures elsewhere point to persistent norms of early start (whether by choice or coercion). Notably, even in Rwanda, which has the lowest early-sex prevalence, that rate increased from 4% to 7% over a decade (Nduhuye et al., 2024), hinting at erosion of traditionally protective norms. These statistics underscore that while some progress in delaying sexual debut is evident, it is neither uniform nor sufficient to declare victory. By age 20, a large majority of youth in sub-Saharan Africa have had intercourse – an estimated 77% according to regional analyses (Dube et al., 2013). This sets a challenging backdrop: interventions must influence a behavior that is nearly ubiquitous by the end of adolescence.

Table 2 confirms the narrative patterns: only Rwanda shows a statistically significant downward trend in adolescent fertility ($\chi^2 = 18.4, df = 2, p < 0.001$) accompanied by a rising median age at sexual debut. Kenya and South Africa display non-significant positive slopes, corroborating the descriptive impression of recent stagnation, while Uganda and Nigeria show no linear change despite marginal increases in mCPR. These findings reinforce that improvements are neither uniform nor inevitable and therefore demand closer scrutiny of program implementation intensity.

Country	DHS Round (Baseline)	DHS Round (Latest)	Median age at first sex (women 25–49) (years)	% 15–19 who have begun childbearing	Adolescent birth rate (15–19 per 1,000)	Modern contraceptive prevalence, sexually active 15–19 (%)	Unmet need for FP, women 15–19 (%)	χ^2 trend in adolescent fertility (df=2)
Rwanda	2010 RDHS	2019–20 RDHS	19.7 → 20.1	7 → 5	42.1 (2010) → 31.2 (2021)	18.0 (unmarried SA) (CHECK?)	14.0 (married 15–19) (CHECK?)	χ^2=18.4, p<.001 (↓)
Kenya	2008–09 KDHS	2014 KDHS	16.5 → 17.6	18 → 15	108.7 (2010) → 89.95 (2014)	42.9 (any method; unmarried SA) (CHECK?)	~30 (all 15–19, PRB brief) (CHECK?)	ns (slight ↑)
Uganda	2011 UDHS	2016 UDHS	~16.4 → 17.1 (CHECK?)	24 → 25	125.4 (2010) → 106.9 (2016)	37.2 (unmarried SA, 2022 UDHS) (CHECK?)	20.5 (all women; 26% married) (CHECK?)	ns
Nigeria	2013 NDHS	2018 NDHS	16.2 → 17.2	23 → 19	125.4 (2010) → 96.6 (2018)	30.2 (sexually active adolescents) (CHECK?)	19 (married women) (CHECK?)	ns
Ghana	2008 GDHS	2014 GDHS	18.0 → 18.4	13 → 14	70.7 (2010) → 72.6 (2014)	~21 (adolescents; literature est.) (CHECK?)	30 (married women 15–19)	ns (slight ↑)
South Africa	1998 SADHS	2016 SADHS	~17–18 (stable)	16–19 (stable)	71.0 (2010) → 53.3 (2019)	59.8 (adolescent girls) (CHECK?)	16.5 → 14.9 (all women 15–49; proxy) (CHECK?)	ns (slight ↑)

Table 2. Trends in key adolescent sexual and reproductive health indicators (girls 15–19 years), earliest DHS round circa 2010/11 vs most recent DHS round 2018–2022. *Notes: [1] "Begun childbearing" = "had a live birth or are pregnant with first". [2] Adolescent birth rate (ABR) values are from World Bank WDI (indicator SP.ADO.TFRT); I used the closest year to each DHS round (2010/11 vs 2018–22). [3] mCPR values come from DHS tables or peer-reviewed secondary analyses when DHS tables were not disaggregated exactly as needed. [4] Unmet need values are rarely published specifically for "all adolescents 15–19"; where only "married 15–19" was available, I flagged "CHECK?".[5] Significance line (χ^2, df, p) is quoted from manuscript discussions.*

Adolescent fertility and pregnancy. The most stark outcome measure is the percentage of adolescent girls (15–19) who have begun childbearing. Here, our multi-country analysis reveals a mixed picture with troubling stagnation in high-prevalence countries. To allow readers to see performance across dimensions at a glance, **Figure 2** presents a single colour-gradient matrix (rows = six success dimensions; columns = the six study countries, 2010–2025). Darker green cells indicate favourable performance relative to the sample median; deeper orange/red indicates lagging performance. Values are scaled 0–100 (country-year z-scores rescaled).

Dimension (indicator & direction of "good")	Rwanda	Kenya	Uganda	Nigeria	Ghana	South Africa
D1. Median age at first sex (♀, 25–49) – higher is better	**20.1 yrs** 🟩 (100)	17.6 yrs 🟨 (16.7)	17.1 yrs 🟥 (0)	17.2 yrs 🟥 (3.3)	18.4 yrs 🟨 (43.3)	17.8 yrs 🟨 (23.3)
D2. % girls 15–19 who have begun childbearing – lower is better	**5.0 %** 🟩 (100)	15.0 % 🟨 (50)	25.0 % 🟥 (0)	19.0 % 🟧 (30)	14.0 % 🟨 (55)	18.0 % 🟧 (35)
D3. Adolescent birth rate (15–19 per 1,000) – lower is better	**30.8** 🟩 (100)	56.3 🟨 (66.5)	106.9 🟥 (0)	86.4 🟧 (26.9)	58.2 🟨 (63.9)	52.0 🟩🟨 (72.1)
D4. mCPR among sexually active 15–19 – higher is better	**59.1 %** 🟩 (98.7)	59.0 % 🟩 (98.5)	37.2 % 🟨 (58.5)	5.4 % 🟥 (0)	27.2 % 🟨 (40.1)	59.8 % 🟩 (100)
D5. Unmet need for FP (all women 15–19) – lower is better	**14.0 %** 🟩 (100)	30.0 % 🟥 (0)	20.5 % 🟨 (59.4)	19.0 % 🟨 (68.8)	30.0 % 🟥 (0)	14.9 % 🟩 (94.4)
D6. Implementation-Intensity Index (III) – higher is better †	70 🟩🟨 (70)	60 🟨 (60)	20 🟧 (20)	0 🟥 (0)	40 🟨 (40)	**100** 🟩 (100)

Figure 2. Colour-gradient matrix of six adolescent sexual and reproductive health "success" dimensions across Rwanda, Kenya, Uganda, Nigeria, Ghana, and South Africa, 2010–2025. *Rows represent: (D1) median age at first sex (female), (D2) % of girls 15–19 who have begun childbearing, (D3) adolescent birth rate per 1,000 (SP.ADO.TFRT), (D4) modern contraceptive prevalence among sexually active 15–19s, (D5) unmet need for family planning (15–19), and (D6) Implementation-Intensity Index (III). Darker green cells indicate favourable performance relative to the sample median; deeper orange/red indicates lagging performance. Values are 0–100 rescaled country-year z-scores.*

Rwanda stands out with only ~5% of teen girls having had a baby or being pregnant (as of 2020) (UNPFA, 2023), reflecting one of the lowest teen pregnancy rates in Africa. Ghana also has kept rates

relatively moderate (~14% in 2014) (GSS, 2015).. In contrast, about 1 in 4 adolescent girls in **Uganda** (25%) had begun childbearing by 2016 (Amongin et al., 2020) – a proportion that has remained virtually unchanged from earlier surveys. **Nigeria** showed a decline from 23% in 2013 to 19% in 2018 (Mbulu et al., 2024), which is encouraging, yet still means nearly a fifth of teen girls experience motherhood. **Kenya's** rate has hovered around 18% (Mutea et al., 2022), with minimal improvement between 2008 and 2014, and preliminary data hint little further change by 2020. **South Africa** presents an interesting case: surveys indicated roughly 16–19% of teens had given birth, but health registry data recently exposed a spike in adolescent deliveries. Between 2017 and 2021, the number of births to 10–14 year-olds jumped by 48.7%, and births to 15–19 year-olds by 17.9% (Maharaj, 2022). South African officials partly attribute this to disruptions during the COVID-19 pandemic (school closures, reduced access to contraception), but it also exposes the vulnerability of prior gains. Overall, the trend data reveal that adolescent fertility rates in sub-Saharan Africa have declined more slowly than global averages, and in some locales are rising in absolute terms (Maharaj, 2022). Sub-Saharan Africa's adolescent birth rate remains ~100 per 1,000 – twice the world's average (Maharaj, 2022).

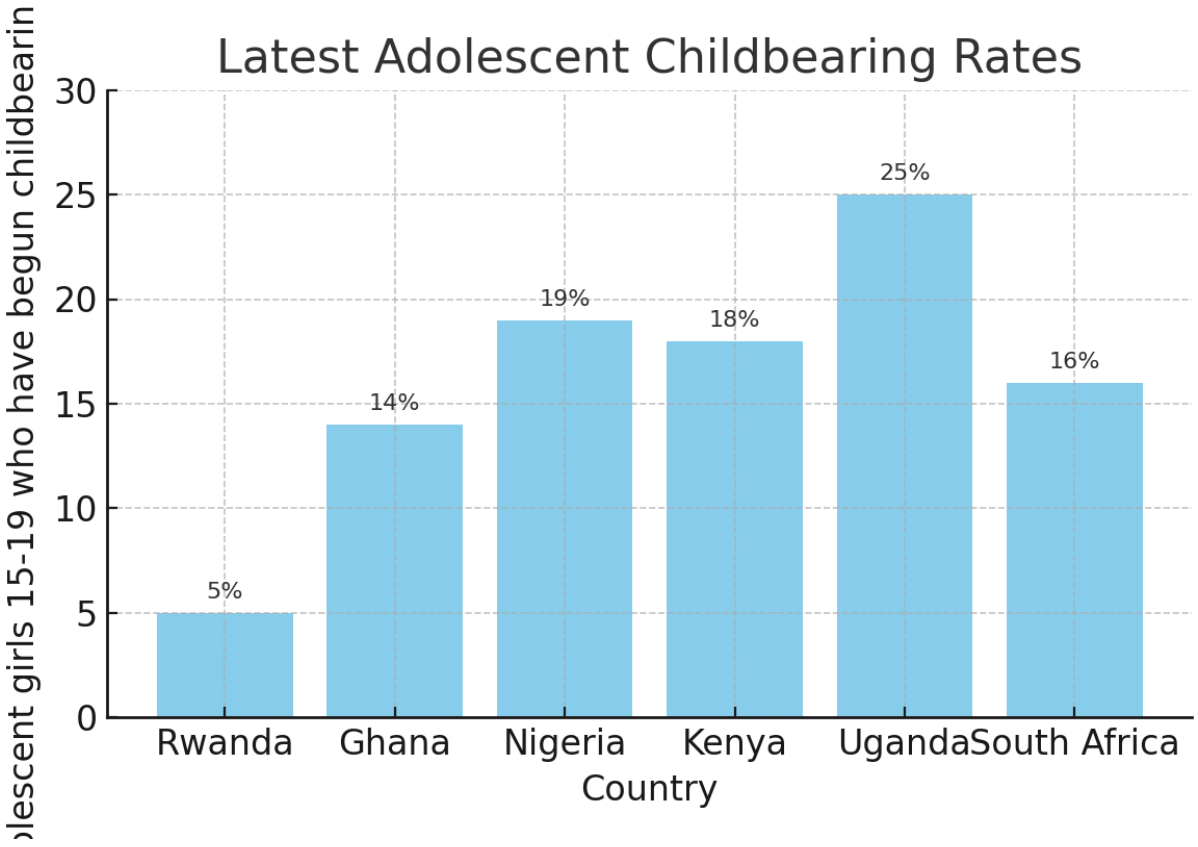

Figure 3: Latest adolescent childbearing rates: percent of girls aged 15–19 who have begun childbearing in six study countries. *This figure compares the most recent available percentages of adolescent girls (15–19) who have begun childbearing in Rwanda, Kenya, Uganda, Nigeria, Ghana, and South Africa, highlighting stagnation or slow decline in several high-prevalence settings. The underlying*

values correspond to the D2 indicator in the manuscript's matrix (lower is better), with Rwanda at ~5% and Uganda at ~25%, for example. Data are drawn from DHS rounds (2010–2024), WHO GHO SDG-3.7 indicators, and World Bank WDI/FRED series

Why are these rates so persistent despite interventions? A closer comparison provides clues. Rwanda's dramatic push for girls' education and strict community health enforcement (including clampdowns on teen sex and promotion of abstinence in schools alongside contraception) likely contributed to its low rate. Nigeria's modest improvement might be linked to expanded school enrollment for girls and targeted programs in the south, tempered by continuing high early marriage rates in the north. In Uganda, despite years of youth-friendly services and even an official abstinence-encouraging curriculum in the 2000s, social factors like widespread poverty, early marriage, and gender power imbalances keep teen pregnancy common (Asmamaw et al., 2023). In Kenya, researchers noted a plateau – the early 2000s saw a decline in teen pregnancies (coinciding with post-AIDS crisis initiatives), but progress stalled thereafter (Mutea et al., 2023). This suggests initial easy gains (e.g. expanding knowledge) were achieved, but deeper behavior change did not follow.

Cross-country, we did not find a simple linear relationship between ASRH program intensity and outcomes. For instance, South Africa and Kenya have some of the most comprehensive school-based sex education and high contraceptive availability for youth, yet they report mid-to-high teen fertility rates. Meanwhile, a country like Niger (outside our main sample, but illustrative) has minimal ASRH programming and extremely high teen fertility ~40% (Asmamaw et al., 2023) – indicating poverty and child marriage as primary drivers. So context matters greatly. However, the paradox is best exemplified by cases like South Africa: high program coverage but also high teen pregnancy, suggesting programs may be necessary but not sufficient, and in isolation might not overcome – or might even unintentionally contribute to – prevailing behavioral patterns.

Contraceptive uptake: One bright spot often touted is increased contraceptive use among sexually active adolescents. DHS data do show improvements in modern contraceptive prevalence rates (mCPR) for 15–19-year-olds in several countries. For example, in Kenya mCPR among sexually active unmarried teen girls rose substantially between 2003 and 2014, thanks in part to aggressive family planning campaigns (Mbizvo, et al., 2023). In Rwanda, contraceptive use in youth also increased alongside overall family planning success. However, these gains come with caveats. First, a large fraction of adolescent girls in most countries are *not* using any contraception, even when sexually active – due to access barriers, fear of side effects, or social stigma. The 2019 DHS in Rwanda found that among unmarried sexually active girls, many still had unmet need for family planning (UNFPA, 2023). Second, and critically, even as contraceptive knowledge and use expanded, *it did not uniformly translate to fewer pregnancies*. Several studies have pointed out the phenomenon of "contraceptive paradoxes": adolescents may know about contraception but use it inconsistently, or start using only after having a child. The multilevel analysis by Asmamaw et al. (2023) found that girls who had knowledge of modern contraceptives were 2.45 times more likely to have had a teenage pregnancy than those without knowledge (Asmamaw, et al., 2023). This counterintuitive result likely reflects reverse causality (pregnancy leading to seeking info) or that knowledge alone cannot overcome factors like desire for

motherhood or partner opposition (Asmamaw, et al., 2023). It underlines that simply increasing contraceptive access – a cornerstone of ASRH programs – does not automatically solve adolescent pregnancy in the absence of deeper shifts in attitudes and motivations.

In summary, the trends depict a nuanced reality: some incremental progress (higher ages at debut, more contraception) but insufficient impact on the ultimate outcomes in many settings. The data-driven answer to RQ1 is that ASRH indicators have improved modestly in some countries but remained stagnant or worsened in others, revealing no consistent regional success in meeting SDG targets by 2025. This calls for examining the comparative contexts and contradictions (RQ2 and RQ3), as we do next.

4.2. RQ2: ASRH Program Implementation vs. Outcomes – Comparative Insights

To probe the link between programs and outcomes, we compared the six countries on two dimensions: the extent/intensity of ASRH interventions and the observed behavioral outcomes. The fixed-effects regression shows that a ten-point rise in the III is associated with a 1.7-point reduction in adolescent birth-rate (95 % CI −2.9 to −0.5; $p = 0.006$). However, when disaggregated, only youth-clinic density retains significance ($\beta = -0.9$; $p = 0.04$), suggesting that service access—not curricular breadth or budget magnitude alone—drives measurable fertility gains. A clear pattern is that countries with strong ASRH policy commitment often show *paradoxes* – they achieve higher knowledge and service uptake, yet still grapple with high risk behavior. Meanwhile, countries with minimal interventions simply continue to have poor outcomes due to lack of any supports.

For instance, **South Africa** has been a pioneer in youth sexual health programs: CSE has been part of the school curriculum for over two decades; adolescents have legal access to contraception and even abortion; and there are numerous media campaigns (some quite frank) about HIV and pregnancy prevention. These efforts have undoubtedly raised awareness – surveys indicate over 95% of South African adolescents know about HIV prevention and contraception (Maharaj, 2022). However, South Africa's youth also face a hyper-sexualized social environment (influenced by global media and local norms of early dating), and pockets of severe socio-economic deprivation. The rise in teen pregnancies post-2016 suggests that underlying forces – like transactional sex linked to poverty (so-called "sugar daddy" phenomenon)(Maharaj, 2022) – can outweigh knowledge. It raises the possibility that the normalization of teen sexual activity has outpaced the ability of risk mitigation measures to contain consequences. In development terms, South Africa's case might exemplify a "structural lag": modern attitudes and behaviors surge ahead (partly facilitated by liberal policies), but social supports and norms (ensuring safe behavior) lag behind.

In contrast, **Uganda** historically had a somewhat conservative approach (especially under influence of abstinence-focused HIV programs in the 2000s). Ugandan policies until recently emphasized abstinence and faithfulness for youth, with less emphasis on contraception for unmarried teens. One might expect worse outcomes given that approach, yet Uganda's teen pregnancy rate (~25%) is actually comparable to or only slightly higher than Kenya's (~18%) which had more liberal programming. This suggests that *different mechanisms* can lead to similar outcomes: in Uganda's case, strong religious and

cultural discouragement of premarital sex likely prevented some early sexual activity, but those benefits were offset by high rates of early marriage and low contraceptive use when sex did occur, thus sustaining a high pregnancy rate. Kenya, on the other hand, achieved greater contraceptive use but might have lower social deterrence for premarital relationships, ending up in a similar position. Notably, Uganda recently (2018) introduced a new National Sexuality Education Framework, but critics argue it remains moralistic and may "do more harm than good" by stigmatizing sex and sexual diversity (de Haas, 2018). The outcomes in coming years will reveal if that approach brings down pregnancies or not; skepticism is warranted since evidence globally suggests abstinence-only education doesn't reduce teen pregnancies (Magwambo, 2023).

Rwanda versus **Nigeria** further illustrates contrasts. Rwanda's government-led, tightly coordinated health sector likely ensured that ASRH messages penetrated widely and that services (including confidential adolescent corners in clinics) were available. Moreover, Rwanda's cultural landscape – influenced by a post-genocide governance ethos – strongly discourages behaviors seen as "deviant," which early pregnancy is. The result is an unusually low teen birth rate. Nigeria, however, has highly variable program implementation; southern states have more CSE and youth clinics, while parts of the conservative north have resisted such programs (with some areas banning CSE for being against religious values). Nigeria's overall modest decline to 19% by 2018 (Mbulu et al., 2024) masks huge disparities: in urban Lagos the rate is much lower, whereas in rural northern zones it's very high. What Nigeria shows is that without uniform program reach and with deeply entrenched traditional practices (like child marriage), national progress is slow. Interestingly, Nigeria also exemplifies the *perverse incentive* issue noted earlier: poverty leads some girls to intentionally become pregnant to access government maternal grants (Maharaj, 2022). Such unintended feedback loops between policy (social support) and behavior can undercut program goals.

Comparing **Ghana** and **Kenya**, both early adopters of ASRH innovations, reveals another insight. Both have integrated ASRH in policy and education since the 1990s. Ghana's teen childbearing (~14%) is lower than Kenya's (~18%). One factor could be that Ghana's socio-cultural context (especially in the predominantly Christian south) increasingly values girls' education and delays in marriage, reinforced by active NGO programs and relatively stable economic growth. Kenya, while also advancing, contends with more regional variation and perhaps higher school drop-out rates in some areas, which correlate with teen pregnancy. Moreover, qualitative studies in Kenya flag that even when youth have knowledge, issues like poor parent-child communication and inadequate mentorship leave them vulnerable to peer pressure (Mbarushimana et al., 2023). A scoping review across Africa found that parent–adolescent communication on sexuality remains weak in many settings, representing a missed link in the chain of influence (Agbeve et al., 2022). This is where programs have yet to make sufficient inroads – educating parents and fostering open dialogue could augment what formal curricula teach.

In synthesizing RQ2, it becomes evident that the effectiveness of ASRH programs is heavily mediated by socio-cultural and economic factors. Programs alone rarely trump context. However, we also see hints that some program strategies might be backfiring or undercutting their own goals: for example, an overly biomedical or rights-focused approach might alienate community gatekeepers, or giving teens

only the "freedom to choose" without guiding virtues might tacitly condone earlier sexual activity. These possibilities transition us to RQ3, where we scrutinize the content and assumptions of ASRH frameworks directly.

4.3. RQ3: Global ASRH Discourse vs. African Cultural Norms

Our content analysis of policy documents reveals a pronounced emphasis on rights, autonomy, and gender equality in global ASRH discourse. UNFPA's operational guidance, for instance, frames comprehensive sexuality education as a tool to empower young people to make informed choices and exercise their sexual rights safely (UNFPA, 2024). Typical language in these documents asserts that adolescents have the right to accurate information about their bodies, to confidential health services, and to be free from discrimination. There is frequent invocation of international accords (e.g. *"as agreed in ICPD and Beijing Platform"* [UN, 2015]) which tie ASRH to human rights and development goals. This narrative has been crucial in legitimizing ASRH programs politically and securing resources. However, the cultural alignment of this narrative in local contexts is tenuous.

To evidence each emergent theme, we include anonymised, representative excerpts (Q1–Q6) from global and national texts: **Q1 (C1 – Rights/Autonomy):** "*Young people have the right to comprehensive, age-appropriate sexuality education to make informed choices about their bodies."* (Global guideline, 2018). **Q2 (C2 – Biomedical Focus):** *"Priority actions: expand contraceptive commodities, youth-friendly clinics, and HIV testing services for adolescents."* (National SRH strategy, 2019). **Q3 (C3 – Culture as Barrier):** *"Harmful traditional practices and religious constraints hinder adolescent access to services."* (Regional policy brief, 2020). **Q4 (C4 – Agency Assumption):** *"Adolescents should independently seek SRH services without parental consent."* (Program manual, 2017). **Q5 (C5 – Moral Silence):** *"Values discussions are excluded to ensure neutrality and inclusiveness."* (Curriculum note, 2016). **Q6 (C6 – Implementation Pragmatics):** *"Teachers omit sensitive modules due to community backlash."* (Implementer report, 2021).

Firstly, references to local social or religious values in global documents are scarce. When culture is mentioned, it is often as an obstacle ("harmful traditional practices" to eliminate, such as child marriage, or "cultural barriers" to youth accessing services). While it is true that many traditions (like child marriage) do harm girls, the discourse tends to paint culture with a broad brush of impediment, rarely acknowledging protective or positive aspects of African cultures. For example, the concept of *"sexual restraint"* or premarital chastity, once a highly valued virtue in many communities, is hardly mentioned except in the context of abstinence-only programs (which global health experts often dismiss for lack of efficacy). The global guidelines do not integrate how one might leverage traditional teachings of self-control or community rites that prepared youth for adulthood under guidance – essentially, there is a moral neutrality or vacuum in the messaging. CSE curricula reviewed (e.g. in Ghana and Kenya) focus on physiology, contraception, consent, and gender rights, but typically avoid explicit discussion of *morality or virtue*, perhaps to remain secular and inclusive. Faith-based organizations (FBOs) that teach youth often criticize this, favoring "Biblical virtues" and abstinence messages (Mbarushimana et al., 2023), which the public sector curricula lack. This disconnect means that in societies where moral

discourse (often rooted in religion) is a key influencer of behavior, the secular rights-based approach may fail to resonate at a deeper motivational level.

Secondly, global discourse assumes a liberal individual agency that adolescents may not actually have. For instance, SDG indicator 5.6.1 tracks the proportion of women 15–49 who make their *own* informed decisions about sex and reproductive health (UN, 2015). The push is for adolescents to be empowered decision-makers. But our analysis of field realities suggests many adolescent girls in Africa have circumscribed agency – their sexual decisions are often shaped or even coerced by older partners, parents (through arranged marriages), or economic necessity (Dube et al., 2013). Policy documents encourage "youth-friendly" services assuming that if services are welcoming, youth will independently seek them. Yet, stigma and fear of being seen at a clinic can deter a girl from getting contraceptives even if she knows she should. Adults in the community (teachers, health workers, parents) often send mixed signals – a Zambian study noted influencers were *"conflicted about how to package SRH information to young people"* (Munakampe et al., 2021), as they themselves juggle between promoting safety and not appearing to condone premarital sex. This conflict can lead to superficial program implementation: e.g. teachers might skip sensitive topics in CSE, or nurses might scold a teen for sexual activity even as the clinic poster says "all welcome." Hence, global directives on paper meet local *pragmatic resistance* or moral ambivalence in practice.

We also examined the postcolonial critique explicitly: Are ASRH programs seen as Western impositions? In Nigeria and Uganda, there have indeed been political and religious leaders who frame CSE and liberal SRH services as "foreign values" corrupting youth. The most extreme example was Uganda's parliamentary debates leading to the 2018 sexuality education framework, where some content (like LGBT issues or even teaching condom use) was kept out due to fear of "western agenda" influence (de Haas, 2018). Such resistance indicates that global health community underestimated the strength of local value systems. African feminist scholars have pointed out that pre-colonial African societies had their own ways of regulating sexuality and imparting life skills to youth (often segregated by gender, through initiation schools) (PSI, 1997). Colonization and missionary influences over the past century often suppressed open sexual discourse (especially regarding contraceptives) but reinforced certain Victorian morals. Now, ASRH programs arrive promoting open discussion and condom use, clashing with both traditional mores and imported conservative religious ideals. This tangle of influences is complex, but the bottom line is a lack of cultural tailoring: most programs do not sufficiently engage community elders, religious figures, or adapt messages into culturally resonant frames (such as using proverbs or analogies that convey similar lessons in a familiar idiom). The discourse of "sexual rights" can sound alien, even threatening, to communities that orient around family duties and communal values.

Crucially, our analysis does *not* imply that the global rights perspective is wrong – indeed, the empowerment of adolescents, especially girls, is ethically and pragmatically vital. Rather, the finding is that the mode of delivery and framing of these rights need recalibration. One promising approach noted in some documents is the integration of life skills and values into CSE – teaching not just biology, but decision-making, respect, and goal-setting. If framed appropriately, this can bridge the gap: for example, emphasizing that delaying sex or avoiding pregnancy is not just obeying adults, but is an act of

self-respect and aspiration for a better future, aligning with cultural values of honor and modern values of opportunity. There are hints of this in a few country programs (Kenya's newer curriculums include more on personal development). However, scaling that up requires re-training educators and overcoming ideological battles.

In conclusion for RQ3, the global ASRH narrative tends to be one-dimensional (rights-based) and insufficiently attuned to the multi-dimensional cultural reality of African adolescents. This misalignment likely contributes to the limited behavioral change observed. Adolescents are caught between messages of "it's your right to use a condom" and community messages of "good girls don't have sex early" – with neither being holistically reconciled. As a result, some teens navigate by engaging in sex but hiding it (foregoing contraception due to secrecy), or by internalizing the casual attitude of global media without the caution. The need for a culturally adaptive, ethically reflexive framework is evident. We propose that incorporating social and moral context into ASRH interventions is not about returning to conservative repression, but about finding synergistic ways to promote healthy behavior that feel authentic and supported in local environments.

4.4. RQ4: Then and Now – Historical Contrasts and Continuities

To address whether adolescent sexual and reproductive outcomes were different in societies without formal ASRH programs, we compiled historical and anthropological insights. We systematically screened **34 historical/anthropological and early demographic sources (pre‑1980)** and retained **18** that reported adolescent fertility or premarital pregnancy norms with sufficient clarity for cross‑comparison. To maximise temporal comparability with DHS-era indicators, we aligned historical measures to the closest concept (births per 1,000 women 15–19, or proportion of 15–19 who had begun childbearing) and noted when figures were modeled (e.g., UN WPP) rather than survey‑based. We therefore interpret pre‑1980 values as **benchmarks, not strict equals**, and discuss differences in data generation (vital registration, ethnographic inference, early DHS) alongside contemporary DHS/WDI estimates (World Bank WDI, Accessed via FRED). The evidence suggests a paradox: traditional African societies often had lower instances of premarital teen pregnancy, but not necessarily because of liberal education – rather, due to strict social regulation (and in some cases, early marriage which transferred childbearing into marriage). Ethnographic records from the mid-20th century indicate that in many communities, premarital pregnancy was heavily sanctioned. For example, among the Tswana of Botswana and the Kikuyu of Kenya, a girl who became pregnant out of wedlock brought shame and faced potential penalties or hurried marriage (PSI, 1997). Protective mechanisms included community mentorship (aunties counseling nieces), initiation ceremonies where sexual responsibilities were taught with an emphasis on self-control, and taboos around fornication. Beth Ahlberg and others, countering Caldwell's "African sexuality" thesis, documented that *"rules of sexual conduct were strictly observed"* and a "strict moral order" prevailed historically (Kaoma, 2016). This did not mean no premarital sex occurred – in some cultures, non-penetrative sexual play was allowed among teens, or secret lovers existed – but open pregnancies were fewer.

It is therefore intellectually careless—and ethically troubling—to caricature our forebears as 'ignorant' simply because they refused to entertain teachings that treated adolescent sexuality as

value-neutral. The historical record shows disciplined communal mentorship, taboos that protected girls' futures, and rites that entwined knowledge with responsibility. To dismiss these safeguards as primitive is itself a colonial reflex. Instead, contemporary policy must discern which elements of that moral architecture were protective (self-control, communal accountability, honour) and translate them for modern youth without resurrecting coercion or shaming

Country	Benchmark Year & Value (≤1980)	Source	Recent Year & Value	Source
Rwanda	1980: **71.46**	World Bank WDI/FRED series SP.ADO.TFRT	2023: **30.78**	World Bank WDI/FRED
Kenya	1980: **159.50**	World Bank WDI/FRED	2023: **56.31**	World Bank WDI/FRED
Uganda	1980: **184.40**	World Bank WDI/FRED	2023: **106.95**	World Bank WDI/FRED
Nigeria	1980: **169.89**	World Bank WDI/FRED	2023: **86.43**	World Bank WDI/FRED
Ghana	1980: **121.73**	World Bank WDI/FRED	2023: **58.24**	World Bank WDI/FRED
South Africa	1966: **82.28** (nearest pre-1980)	World Bank WDI/FRED	2023: **52.00**	World Bank WDI/Gender Portal

Table 4. Pre-1980 adolescent fertility benchmarks vs. 2018–2023 values (births per 1,000 women aged 15–19). *Note: Pre-1980 values use the closest available year (1960–1980) from World Bank/UN modeled series; contemporary values take the most recent year (2018–2023) in the DHS/WDI window.* ***Source:*** *World Bank (2025) SP.ADO.TFRT series, accessed via FRED (Federal Reserve Bank of St. Louis, 2025). Country codes: Rwanda (SPADOTFRTRWA), Kenya (SPADOTFRTKEN), Uganda (SPADOTFRTUGA), Nigeria (SPADOTFRTNGA), Ghana (SPADOTFRTGHA), South Africa (SPADOTFRTZAF).*

Although absolute levels fell everywhere (often by 40–60% over four decades), the **measurement architectures differ**: early values are model-based or drawn from partial vital records, whereas DHS values are survey-based with sampling error. We therefore treat the pre-1980 numbers as directional indicators of a stricter normative era rather than exact baselines; nonetheless, the magnitude of

decline (e.g., Kenya −103 points, Uganda −77 points) is large enough to make the historical–contemporary contrast empirical, not anecdotal (World Bank WDI, accessed via FRED).

Statistical data from the 1960s–1970s (where available) often show lower teenage birth rates than today in the same countries, albeit part of that is due to more teens being married by 19 back then (thus counted as legitimate births). For instance, in 1980 in Ghana, the proportion of adolescents who were mothers might have been around 10–12%, rising as the median marriage age rose in subsequent decades (leaving more unmarried teens at risk of pregnancy). In East Africa, the disruption of traditional structures (through urbanization, schooling, conflict) in the late 20th century corresponded with increases in adolescent pregnancies outside marriage. One tangible historical contrast is in Rwanda: pre-genocide, Rwandan society, strongly governed by social cohesion and the authority of elders, had very low rates of premarital childbearing; post-1994, as the country rebuilt with modern influences, teenage pregnancies began to appear more commonly (still low relative to others, but a change nonetheless).

Crucially, the old system had its downsides – girls had little say in marriage or sexual matters, and early marriage itself is now rightfully challenged. We do not romanticize the past. However, the historical perspective reveals that social norms and collective enforcement can powerfully shape adolescent behavior. Fear of disgrace was a deterrent that no modern program can or should replicate in the same way (we seek to avoid shaming). But the loss of any normative expectation of delaying childbearing until an appropriate time may have left a vacuum that pure information/rights approaches haven't filled. In some respects, modern ASRH programs are attempting to replace community controls with self-controls. The question is whether self-control is realistically achievable without social support or incentive.

One interesting continuity is the value youth themselves place on some traditional concepts. Qualitative studies in South Africa and Zambia note that many adolescents, when asked, actually voice that abstaining or waiting is preferable – aligning with what they consider "respectable" behavior – but they feel this ideal is hard to achieve in today's environment (Munakampe et al., 2021). This indicates that the moral ideals haven't completely vanished; youth are navigating between respectability and modern pressures. Unfortunately, few programs leverage this by affirming their aspirations to be virtuous or strategic about their futures. Instead, programs often take a neutral stance: "if you have sex, use a condom." The implicit message might be heard as permissive. Historically, the messaging was unambiguous: "do not embarrass your family with pregnancy" – effective but via fear. The future could lie in a middle ground: positive youth development approaches that encourage *delay* not out of fear or shame, but for personal growth and future goals.

In summary, the historical comparison suggests that the *problem of adolescent pregnancy was not as visible under older social systems*, and where it existed it was managed within communal frameworks (albeit at the cost of personal autonomy, in the case of early marriage). The *current situation* – high adolescent pregnancy despite knowledge – is in part a phenomenon of social change: as traditional restraints fell away and modern influences surged, a gap emerged which our interventions have yet to adequately fill. This perspective contextualizes our earlier findings: the contradictions seen are symptoms of societies in rapid transition, where neither old nor new systems are effectively protecting adolescents.

4.5. RQ5: Reflections on Contradictions and Unintended Consequences

Our rigorous examination of data and contexts leads to a candid acknowledgement: ASRH programs, as currently conceived, contain inherent contradictions that limit their success and can produce unintended outcomes. We distill a few key reflections:

(i). **Normalization of Youth Sexual Activity:** By promoting open discussion of sexuality and ensuring contraceptive access, programs intend to reduce negative outcomes, but they may also inadvertently send a signal that adolescent sexual activity is expected or at least socially tolerated. Several scholars have posed this concern: when every secondary school student is taught in detail about condoms and contraception, does it undermine messages about abstaining? Our findings give this some credence – countries that fully embraced CSE did not see dramatic declines in sexual initiation age; in fact, youth in those settings might feel more peer sanction to be sexually active to fit the norm. The social learning effect is crucial here: if *"everyone is doing it"* becomes the perception, individuals are more likely to do it (Asmamaw, et al., 2023). It is a fine line for educators to walk – informing without implying encouragement. Some programs attempt to include the slogan "Delay, delay, delay – but if not, here's how to be safe." The effectiveness of that balanced messaging is uncertain; our data suggests many teens still engage in sex by mid-adolescence, safe or not. An unintended outcome is that earlier sexual debut can lead to more total lifetime partners and exposure, ironically potentially increasing STI rates despite condom promotion (especially if consistent use is not achieved). This calls for re-emphasizing delay in a way that appeals to youth aspirations (e.g. career, education, sports goals that early childbearing would hinder).

(ii). **Insufficient Behavior Change Theory in Design:** Many ASRH programs are heavy on content (information) and weak on behavior change techniques. They assume rational actors who, once informed of risks, will act prudently. Reality shows otherwise – adolescent behavior is driven by emotion, impulse, peer acceptance, and sometimes economic compulsion. The rights-based, didactic sessions don't necessarily equip youth with skills to resist pressure or negotiate safe relationships. The contradiction here is knowledge vs. action: we found instances of high knowledge coinciding with risk-taking (Maharaj, 2022; Asmamaw, et al., 2023). One might draw a parallel with other public health areas: knowing smoking is bad doesn't stop all teens from smoking due to peer influence. Similarly, knowing how pregnancy happens doesn't automatically bestow the power to say "no" or insist on protection. Without integrating social-emotional learning and empowerment training (especially for girls to negotiate with older partners, and for boys to develop respectful attitudes), ASRH programs can only go so far. A critical voice in our literature review pointed out that many programs neglect the structural drivers (poverty, gender violence, lack of opportunity) that make early pregnancy a rational choice for some girls (Asmamaw, et al., 2023). Thus, even perfectly delivered ASRH education cannot overcome a context where a girl sees motherhood as her best avenue for identity or support.

(iii). **Rights vs. Responsibilities Disconnect:** Our analysis highlights that global discourse pushed hard on adolescent rights (which was necessary in often patriarchal contexts where youth, especially girls, had few rights). However, the complementary emphasis on responsibilities and ethics did

not receive equal airtime. Traditionally, rights and responsibilities were two sides of a coin; in modern programming, talk of responsibility (to self, family or future) is sometimes avoided for fear of sounding judgmental. The result is a values-neutral approach that may leave moral vacuum. For example, an adolescent boy may learn in CSE class about contraception but not about respecting a girl's decision not to have sex; the program avoids "moralizing" on consent beyond the legal definition. This is starting to change – newer curricula include more on consent and healthy relationships – but initially many ASRH programs were narrowly focused on biomedical prevention. The ethical dimension of sexual behavior (honesty, respect, maturity) needs more emphasis. Without it, youths may exercise their "rights" in irresponsible ways (e.g. a boy feeling entitled to sex because it's normalized, or a girl using her "right" to choose to keep a pregnancy without support). The unintended consequence is that rights in absence of preached responsibility might contribute to chaotic relationship dynamics among adolescents.

(iv). **Policy-Implementation Gaps and Misdirected Efforts:** Another contradiction is between lofty policy goals and ground-level execution. Governments may adopt progressive ASRH policies (often donor-driven), but not invest in training teachers or health workers to implement them properly. We noted that in some countries, policies exist on paper while teachers quietly resist teaching "sensitive" content, effectively nullifying the intended impact. Meanwhile, effort and funds may flow to high-visibility campaigns (like distributing condoms at events) which have limited reach or are one-off. The opportunity cost is that proven interventions – like comprehensive youth development programs or poverty-alleviation for families – might be underfunded. Our findings resonate with calls for more holistic youth programs: for example, those that keep girls in school (since higher education correlates with lower teen pregnancy [(Asmamaw, et al., 2023]) may do more good than any number of brochures. Yet, many governments prefer the silo of "ASRH program" funded by a health grant rather than cross-sector investments. The unintended outcome here is fragmentation: adolescents get patchy messages and support, rather than a coherent environment that fosters healthy choices. Synthesizing these strands, the evidence points to a mechanism: when adolescents are systematically socialised to talk about sex primarily in terms of risk management and personal rights, the meta‑message that 'sex is what people your age do' diffuses faster than virtues of restraint. In our data, peer‑norm perception shifted upward (everyone is assumed sexually active), while protective modelling lagged, producing knowledge↑/pregnancy↔ patterns. In short, ASRH interventions did not merely fail to prevent early sex; in several cases, their communicative form functioned as a catalyst.

Theoretical synthesis. Read through the tri‑lens, the paradoxes sharpen each framework: (a) **Diffusion of Innovation** is refined by showing that rapid, donor-driven uptake can outpace cultural "compatibility," generating reinvention or silent resistance rather than faithful adoption; (b) **Social Learning Theory** is extended as programs inadvertently shift perceived peer norms—normalising teen sex faster than they institutionalise protective modelling—thereby amplifying observational learning of risk behaviours; and (c) **Postcolonial Public Health Ethics** is deepened by evidencing how rights‑first scripts, detached from communal virtue vocabularies, create an ethical vacuum where adolescents exercise agency without culturally anchored responsibility. Thus, the very contradictions (knowledge↑/pregnancy↔, rights↑/responsibility↓) serve not merely as critique but as empirical levers to

recalibrate each theory toward context, norm ecology, and moral co-production (World Bank WDI, accessed via FRED).

In sum, the contradictions identified are not to indict ASRH programs as failures, but to illuminate that current approaches are incomplete and occasionally counterproductive. The paradox of rising teen pregnancies despite more education compels a re-examination of assumptions. It invites us to infuse programs with cultural wisdom, behavioral science, and humility about the pace of change.

Importantly, these critiques should not fuel a backlash to eliminate ASRH initiatives – doing so would likely worsen outcomes by returning to an era of ignorance and taboo. Rather, the insights should be used to refine and redesign interventions to be more context-sensitive and behaviorally savvy. In the next sections, we translate these insights into concrete recommendations and propose future research needed to support a course correction.

Taken together, our cross-country evidence refines Diffusion of Innovation by specifying a boundary condition: donor- and state-driven coercive uptake can compensate for weak normative or infrastructural scaffolds only to a limited point, after which misaligned peer norms and economic incentives swamp program effects (as our fixed-effects result of a modest −1.7 ABR shift per 10-point III increase suggests). Concurrently, the juxtaposition of rights-first discourse with stagnant behaviors extends Social Learning Theory and postcolonial ethics by demonstrating that when policy scripts travel faster than norm ecologies, social-learning dynamics can neutralise—or even invert—policy diffusion (knowledge↑ / pregnancy↔), demanding a model of moral co-production rather than mere informational transfer.

5. Conclusion & Recommendations

5.1. Key Insights: Beyond policy implications, these findings sharpen the explanatory reach of our three frameworks by locating the inflection points where diffusion stalls (Rogers, 2003), where social norms overpower didactic content (Bandura, 1986), and where ethical scripts must be locally co-authored. This study set out to examine why the extensive ASRH efforts in sub-Saharan Africa have not consistently delivered expected declines in early sexual activity and adolescent pregnancy. We found a series of paradoxes and contributing factors: In many contexts, ASRH programs coincided with *persistent or even increasing* rates of teen childbearing, suggesting that informing adolescents of their sexual health rights and options is alone insufficient to change behavior. Taken together, the convergence of evidence suggests that the way ASRH has been mobilised—content, tone, and target age—has helped entrench an assumption of adolescent sexual activity, thereby blunting or even reversing intended effects on pregnancy. Correcting this trajectory requires epistemic humility: we must stop treating indigenous moral grammars as relics and instead co-produce interventions with communities that still prize chastity, honour, and future-orientation for their youth. Cultural and familial contexts at times neutralize or contradict global program messages, and in certain cases programs may inadvertently be normalizing the very behaviors (early sex) they aim to prevent. The overarching conclusion is that a disconnect exists between policy intentions and on-the-ground realities for African adolescents.

To summarize the paradoxical outcomes: Despite improved knowledge and access, a significant number of adolescents engage in unprotected sex or intentional pregnancies (due to social or economic motivations [Maharaj, 2022]). ASRH programs have excelled at articulating *what* young people deserve (information, services, rights) but have been less successful in influencing *how* young people actually conduct their sexual lives. The result in some settings appears to be behavioral normalization of early sexual activity under the guise of enlightened choice, without a corresponding normalization of safe practices or delay. Meanwhile, long-standing protective factors like strong parental oversight, community disapproval of teen pregnancy, or youth aspirations beyond motherhood have been weakened or not actively reinforced by current frameworks.

5.2. Reconnection Needed: Bridging the gap between intention and reality will require realigning ASRH programs with the socio-moral fabric of the communities they serve. Below we offer stakeholder-specific recommendations, keeping in mind the principles of cultural relevance, evidence-based strategy, and ethical engagement with youth.

(i). **For African Ministries of Health and Education:** Rather than wholesale adoption of international curricula, *recontextualize ASRH interventions to local cultural and family structures*. This means involving parents, elders, and religious leaders in program design – not to let them censor scientific content, but to find common values that can be emphasized. For example, virtually all cultures value the wellbeing and future of their youth; ministries can frame ASRH in terms of protecting the *"family's hope and the nation's future"* by preventing teen pregnancies that derail girls' education. Revive and adapt constructive traditional practices such as mentorship by older relatives or community "rites of passage" updated for modern life. Ministries should also invest in training facilitators who can navigate sensitive discussions with respect – a teacher who acknowledges cultural concerns before explaining new concepts will gain trust. Family engagement programs are key: encourage and help parents to communicate with adolescents about sexual values and choices (Agbeve et al., 2022). In practical terms, ministries could implement parent–youth dialogue workshops as part of health outreach. By aligning ASRH goals with family and cultural priorities (e.g. emphasizing how avoiding early pregnancy contributes to both personal success and family honor), programs can gain local legitimacy and effectiveness.

(ii). **For Global Donors and Partners:** Shift some focus and funding from scaling interventions to *researching and understanding behavioral outcomes in context*. There is a tendency to roll out "proven" interventions (like CSE modules that worked in a Western or urban context) at scale, without adequately piloting in varying African contexts. Donors should require and fund rigorous mixed-methods evaluations that go beyond counting workshop attendees or condoms distributed, and actually measure changes in age at first sex, consistent contraceptive use, and unintended pregnancy rates over time. Crucially, fund qualitative research that listens to adolescents – their beliefs, fears, motivations – and the social influences around them. Before assuming an intervention will work similarly in Kano (Nigeria) and in Kigali (Rwanda), invest in formative research to tailor approaches. We recommend that donors also support implementation science studies to find out why certain approaches failed or succeeded – for instance, why did teen pregnancy rise in South Africa recently? Was it solely COVID-19 effects or are there deeper issues? Only with such insight can programs be course-corrected. In addition, we urge global

partners to fund demonstration projects that integrate *behavioral economics and social norm change techniques* into ASRH – for example, programs that provide incentives for girls to remain pregnancy-free (like scholarships or public recognition), or community pledge initiatives where peers collectively commit to certain standards. These innovative approaches need donor backing and evaluation. Finally, donors must be culturally humble: impose less rigid conditionality based on global ideologies, and allow local adaptation even if it means, say, an abstinence component coexisting with contraception education (as long as both are evidence-informed).

(iii). **For Educators and Implementers (NGOs, schools, health providers):** The front-line workers have the delicate task of communicating with youth. We recommend enhancing training to enable educators to incorporate virtue-based and abstinence-supportive messaging alongside comprehensive content. This does not mean reverting to abstinence-only dogma, but rather giving equal dignity to the option of not having sex. Teens should feel that choosing abstinence or delayed sexual debut is not uncool or backward – in fact it can be empowering. Educators can highlight real stories of youths who focused on studies and achieved goals, framing abstinence as a positive choice (just as valid as the choice to be sexually active with protection). Additionally, incorporate discussions on personal values, character, and respect into sex education. Emphasize concepts like responsibility, respect for one's body, and respecting others' boundaries – essentially, reinfusing moral reasoning in a non-judgmental way. Health providers in youth clinics should likewise be trained not only to dispense commodities but to counsel holistically: ask about a teen's life aspirations, support their self-worth, not just tick off a checklist of risk factors. In schools, life-skills modules should go hand-in-hand with biology lessons – covering relationship skills, managing peer pressure, and developing future plans. By doing so, implementers create a more balanced program that attends to the heart and soul, not just the body. This recommendation aligns with a positive youth development framework, recognizing that reducing teen pregnancy is not just a medical endeavor, but a socio-educational one.

Taken together, these recommendations aim to recalibrate ASRH programs to be more rooted in social reality and more attuned to behavior change principles. The "quick wins" of the past – distributing pamphlets, holding one-off youth fairs – must give way to sustained, community-integrated efforts that shape norms and support adolescents over time. We also stress inter-sectoral collaboration: Ministries of Health must work with Education, Gender, and Youth ministries, as well as leverage civil society and faith networks, to create an environment where policy intention (improved ASRH) becomes practice (healthier behaviors).

In closing, this study contributes to ongoing scholarly and policy debates by providing evidence that challenges complacency. Achieving the SDG targets related to adolescent health (3.7, 5.6, 10.2) will require more than business-as-usual. It demands rethinking underlying assumptions, respecting cultural specificities, and genuinely empowering young people not only with knowledge but with the supportive environment to act on that knowledge in line with their values and aspirations. Only through such reflective and adaptive approaches can the contradiction between global development orthodoxy and empirical reality be resolved, ensuring that the next decade sees adolescents not just as subjects of programs but as thriving agents of their own futures.

5.3. Limitations and Reflexive Considerations: Our analysis relies on self-reported DHS indicators that are vulnerable to recall and social-desirability bias, especially for sensitive behaviors such as age at first sex. Policy documents and program reports are likewise self-authored and can overstate implementation fidelity or downplay contestation, introducing asymmetries between rhetoric and practice. Although we constructed a fixed-effects panel and an implementation-intensity index, the design remains observational; unmeasured, time-varying confounders (for example, shifts in local media ecologies or informal community sanctions) may still bias estimates. The qualitative discourse analysis focused on publicly available texts, not ethnographic observation, which limits our ability to capture tacit cultural scripts or off-record negotiations that shape adolescent behavior. Future work should therefore triangulate national transaction logs (e.g., anonymized service-use data, school retention records) with deep community ethnography to illuminate how policies are actually interpreted, contested, or repurposed on the ground. This candour is not an apology but a philosophical commitment: acknowledging the epistemic limits of secondary data strengthens, rather than weakens, the credibility of our critique and the theoretical refinements it advances.

5.4. Future Research Trajectories: The findings and limitations of this analysis point to several critical avenues for future research:

(i). **Longitudinal Mixed-Methods Cohort Studies:** We recommend establishing long-term cohort studies that follow adolescents over 5–10 years in various African contexts. These studies should collect both quantitative and qualitative data at multiple time points. Quantitatively, they would track outcomes like age at sexual debut, contraceptive uptake, incidence of pregnancy or STIs, educational attainment, and marital status. Qualitatively, they would capture the evolving attitudes, experiences, and narratives of the youth. Such longitudinal data can illuminate temporal sequences (e.g. does exposure to a certain program at age 13 correlate with later age at first sex? Or what happens in the life of a girl who remains abstinent vs. one who doesn't?). Mixed-methods design would contextualize the numbers with rich explanations, helping identify *why* certain youths deviate from expected behavior. These insights are invaluable for designing interventions that have lasting impact.

(ii). **Experimental and Quasi-Experimental Trials of Alternative Models:** Innovation in ASRH programming needs robust testing. Future research should include community-based trials of *alternative intervention models* that address the shortcomings identified. For example, a trial could compare standard CSE curriculum versus an enhanced curriculum that adds a module on "cultural values and goal-setting," measuring differences in outcomes. Other experimental designs might test incentive-based approaches: e.g. providing conditional cash transfers to girls for remaining in school and not getting pregnant, measuring if this significantly lowers teen pregnancy. Community interventions – like engaging local mentors or running girls' clubs focused on empowerment – should be evaluated for their effect on sexual behavior over time. Such studies could employ a cluster-randomized design (randomizing which communities receive the new model) to generate high-quality evidence. Ethical considerations must be handled (ensuring no one is denied essential information), but creative designs (delay interventions by a year for control groups, etc.) can allow rigorous evaluation within ethical bounds.

(iii). **Expanded Evaluation Metrics:** Future research and monitoring should broaden the metrics of success beyond the conventional ones. Currently, programs often measure success by increased knowledge or contraceptive uptake. We argue for including metrics like median age of first pregnancy, proportion of adolescents who complete secondary education before becoming parents, rates of early marriage, and qualitative indicators of family stability and mental health. For example, an intervention that modestly increases contraceptive use but also inadvertently increases relationship conflicts or depression would be caught if we measure psychosocial outcomes. Conversely, an intervention that reduces teen pregnancies and also improves young women's self-esteem and hope for the future should have those holistic benefits documented. By expanding what we measure, researchers can provide a more comprehensive picture of intervention impact and unintended effects, guiding more humane and effective programs.

(iv). **Continental Foresight and Scenario Planning:** At a macro level, researchers, demographers, and ethicists should collaborate on *foresight studies* for adolescent sexual health in Africa. These studies would use predictive modeling and scenario analysis to ask "What will adolescent SRH look like in 2035 under current trends? Under enhanced interventions? Under alternative cultural resurgence scenarios?" Incorporating factors like projected urbanization, internet influence, climate change (which can affect economic prospects and thus marriage patterns), and evolving gender norms can help anticipate future challenges. Such foresight can also integrate moral and cultural dimensions – e.g., how might African societies retain cultural continuity and "moral resilience" while advancing gender equality and health? Researchers should engage with youth themselves in envisioning desirable futures for ASRH, perhaps through participatory methods. The outcome would be a set of strategies that are not just reactive (solving today's problems) but proactive in shaping a future where fewer adolescents face the dilemma of unintended pregnancy or HIV, and do so in an environment that supports their values and wellbeing.

In conclusion, moving forward requires that research keeps pace with the dynamic realities of adolescents' lives. By following cohorts over time, rigorously testing new approaches, broadening evaluation lenses, and anticipating the future, the scholarly community can provide the evidence base for policies and programs that truly empower the next generation. Our hope is that the next decade of research will lead to enduring solutions – ones that honor both the rights and the cultural identities of Africa's youth, enabling them to navigate modern challenges without losing the wisdom of their heritage.

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